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II. from 60 to 20 parts by weight of a flexible polymer whose main chain consist of carbon atoms, where the amounts of I and II in parts by weight total 100, and wherein the interior wall component comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100% ethanol under reflux conditions, the pipe being useful for the piping of aqueous, aqueous-alcoholic or purely alcoholic liquids.--

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### REMARKS

Claims 3 and 13 have been cancelled. Claims 1, 2, 4-12 and 14-16 and new Claims 17 and 18 remain active in the case. Reconsideration is respectfully requested.

The present invention relates to a flexible pipe having high dimensional stability, good recovery performance and good resistance to fluid media. The combination of properties demanded for materials used in the manufacture of pipes of high flexibility useful in the automotive industry, not only include high flexibility, but also resistance to breaking when flexed, good dimensional stability, good recovery performance and good resistance to fluid media. However, particularly when such materials are exposed to aqueous alcoholic media, extraction of extractable materials from the pipe materials has been a problem. These materials are dissolved and then lead to nozzle blockages or to deposits and/or visual defects after evaporation of wash liquids on wetted surfaces.

The discovery of the present invention is an improved molding composition, which is especially useful for the preparation of the interior walls of flexible plastic pipes, which not only exhibit high dimensional stability and good recovery performance, but also good resistance to fluid media, particularly alcoholic media.

The invention as now claimed is directed to a molding composition and pipes prepared from the same comprising the following components:

- I. from 40 to 80 parts by weight of a polyamide, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chains essentially consist of carbon atoms, wherein the parts by weight of I and II total 100, and wherein the composition contains not more than 2% by weight of extractables, measured by extracting the granules with hot 100% ethanol under reflux conditions. Further, the material may also have a tensile modulus of elasticity in the range of from 200 to 950 N/mm<sup>2</sup>.

Claims 1-10, 13, 14-16 stand rejected based on 35 U.S.C. §102(b) as anticipated by Yu, U.S. Patent 5,256,460. This ground of rejection is respectfully traversed.

The Yu reference is clearly relevant to the present invention since it discloses a polymeric blend and a fuel container made from the blend which exhibits improved resistance to fuel. The composition is prepared by blending a polyolefin having pendant carboxyl, ester, anhydride or carboxylate groups with a copolymer prepared by the copolymerization of  $\epsilon$ -caprolactam and an aminocarboxylic acid having a carbon atom content not less than 9, a lactam corresponding to the aminocarboxylic acid or a mixture of hexamethylenediamine and a dicarboxylic acid. (See the Abstract and Summary of the Invention). However, it is clear that the copolymer component of the formulation of the reference is based upon  $\epsilon$ -caprolactam as an essential ingredient of the polyamide component of the composition. On the other hand, the pipe as claimed in present Claim 1 is not limited to copolyamides prepared from  $\epsilon$ -caprolactam and another polyamide material. Moreover, the reference nowhere teaches or suggests that in fabricating a pipe or a molding composition from a combination of a polyamide and a flexible polymer, that the

not a part of any clearly distinguishable invention

resulting material must not only have the feature of low extractability in that not more than 2% by weight of extractables, are extracted when the material is subjected to hot 100% ethanol under reflux conditions, but also must have a tensile modules of elasticity in the range of 200 to 950 N/mm<sup>2</sup>. There is absolutely no disclosure of these important property features of the claimed pipe and molding composition of the present invention, and thus one of skill in the art, considering the Yu disclosure, would not be led to so select polyamide and flexible polymer components which meet the property requirements set forth in Claims 1 and 14.

*Ref. 13 not  
regarded to  
disclose each  
feature or  
characteristics*

New Claim 18, which excludes PA 6, provides a further point of distinction of the claimed subject matter over Yu in that the claim positively excludes PA 6 from the polyamide component. Accordingly, withdrawal of the anticipatory ground of rejection is respectfully requested.

Claims 1-16 stand rejected based on 35 U.S.C. §103(a) as obvious over Siour, EP 308 in view of Yu. This ground of rejection is respectfully traversed.

Although the Siour reference discloses a polyamide-based material for the transportation of fluid material such as alcohol, and in fact is a blend of a polyolefin in a polyamide matrix material, nevertheless there is absolutely no teaching or suggestion of the important property considerations recited in the present claims relating to extractable content of the composition and tensile modulus of elasticity. Accordingly, one of skill in the art would not be led by Siour to formulate a molding composition from appropriate polyamides and polyolefins such that the property limitations of the present claims are met. Further, since, as pointed out above, the Yu reference fails to suggest the property limitations of the present claims, it is clear that the cited combination does not obviate any generically claimed embodiment of the present invention, and in particular Claims 14 and 18 which exclude polyamide prepared by the polymerization of  $\epsilon$ -

caprolactam. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 1-16 stand rejected based on 35 U.S.C. §112, second paragraph. This ground of rejection is obviated by the amendment made to Claims 1 and 2. Withdrawal of the rejection is respectfully requested.

As to the amendments which have been made to the claims, Applicants in particular point out that support for the tensile modulus of elasticity limitation of the present claims is found on page 7, lines 16-18 of the specification. Claim 13 has been recast into conventional method-of-use format as new Claim 17.

It is now believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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